We claim:

1. A method for making dry, micronized particles of an agent, comprising:

(a) dissolving a macromolecular material in an effective amount of a solvent, to form a solution;

(b) dissolving or dispersing the agent in the solution to form a mixture;

(c) freezing the mixture; and

(d) drying by vacuum the mixture to form solid particles of the agent dispersed in solid macromolecular material.

2. The method of claim 1 further comprising separating the solid particles of agent from the solid macromolecular material.

3. The method of claim 2 further comprising encapsulating the solid particles of agent in an encapsulating material.

4. The method of claim 1 wherein greater than 90% solid particles are less than 0.2 μm in size.

5. The method of claim 4 wherein greater than 90% solid particles less than 1 μm in size.

6. The method of claim 1 wherein greater than 90% of the solid particles are between 10 nm and 1 μm.

7. The method of claim 1 wherein the agent is a bioactive agent.

8. The method of claim 7 wherein the bioactive agent is a protein.

9. The method of claim 8 wherein the protein is a growth hormone.

10. The method of claim 8 wherein the protein is an osteoprotegrenin.

11. The method of claim 7 wherein the agent is selected from the group consisting of peptides, antibiotics, nucleotide molecules, and synthetic drugs.

12. The method of claim 1 wherein the macromolecular material is a polymer.

13. The method of claim 12 wherein the polymer is selected from the group consisting of polymers of lactic acid and glycolic acid, polyanhydrides, poly(ortho)esters, polyurethanes, poly(butic acid), poly(valeric acid),

poly(caprolactone), poly(hydroxybutyrate), poly(lactide-co-glycolide), poly(lactide-co-caprolactone), and blends and copolymers thereof.

14. The method of claim 1 wherein the mixture of step (b) is an emulsion.

15. The method of claim 1 wherein step (d) utilizes lyophilization.

16. The method of claim 3 wherein the encapsulation is conducting using a process selected from the group consisting of interfacial polycondensation, spray drying, hot melt microencapsulation, and phase separation techniques.

17. The method of claim 12 wherein the phase separation technique is selected from the group consisting of solvent extraction, solvent evaporation, and phase inversion.

18. The method of claim 17 wherein the mixture has a continuous phase containing the solvent and wherein the phase inversion technique comprises:

introducing the mixture into a nonsolvent, wherein the volume ratio of solvent:nonsolvent is at least 1:40, to cause the spontaneous formation of a microencapsulated product, wherein the solvent and the nonsolvent are miscible.

19. The method of claim 18 wherein 0 less than δ solvent – δ nonsolvent less than 6.

20. The method of claim 18 wherein the volume ratio of solvent:nonsolvent is between 1:50 and 1:200.

21. The method of claim 18 wherein the macromolecular material is dissolved in the solvent at a concentration of less than 10% weight per volume and wherein the mixture has a viscosity of less than 3.5 cP.

22. The method of claim 20 wherein the concentration of the macromolecular material in the solvent is between 0.5 and 5% weight per volume.

23. The method of claim 8 wherein freezing of the mixture is performed sufficiently rapidly following addition of the agent to the solution such that denaturing of the protein is substantially avoided.

24. The method of claim 2 wherein the particles of agent are separated from the solid macromolecular material using a method comprising

dissolving the macromolecular material in an effective amount of a solvent for the macromolecular material, wherein the solvent is a nonsolvent for the agent.

25. The method of claim 3 wherein the encapsulating material is a biocompatible polymer.

26. The method of claim 25 wherein the biocompatible polymer is selected from polyesters, polyanhydrides, polystyrenes, poly(ortho)esters, copolymers thereof, and blends thereof.

27. A polymeric or macromolecular composition comprising particles of a bioactive agent, wherein more than 90% of the bioactive agent particles are less than 2 μm in size.

28. The composition of claim 27 wherein more than 90% of the particles are less than 1 μm in size.

29. The composition of claim 27 wherein particles are dispersed in a solid macromolecular material.

30. The composition of claim 29 wherein the material is a polymer.

31. The composition of claim 27 made by a process comprising:

(a) dissolving a macromolecular material in an effective amount of a solvent, to form a solution;

(b) dissolving or dispersing the bioactive agent in the solution to form a mixture;

(b) freezing the mixture; and

(c) drying by vacuum the mixture to form dry, solid particles of the agent dispersed in solid macromolecular material.

32. The composition of claim 27 in a pharmaceutically acceptable carrier.

33. A method enhancing delivery a bioactive agent to a patient in need

thereof comprising administering the bioactive agent as particles, wherein more than 90% of the particles are less than 2 μm in size.